**Outcome N9.2 Rational Numbers**

**Definition of a Rational Number:**

A number that can be written as the quotient of two integers, that is, in the form of m , where m

n

and n are any integers with the exception that n ≠ 0. **Note:** the decimals are terminating or repeating for rational numbers.

**Types of Rational Numbers:**

1. **Natural Numbers**
2. **Whole Numbers**
3. **Integers**

**Definition of an Irrational Number:**

A number that cannot be written as the quotient of two integers!!

Note: the decimals are non-terminating or non-repeating for irrational numbers!!

Ex. Π, √2, √10 (non-perfect squares)

**Terminating and Repeating Decimals**

***Terminating Decimals*** - these are rational numbers that have a fixed number of decimal places.

ex. 3/4 = 0.75 ex 2/5 = 0.4

***Repeating Decimals -*** these are rational numbers that have a digit or a group of digits that

repeat.

 ex. 2/3 = 0.666666...  ex. 2/11 = 0.18181818... ex. 1/6 = 0.16666666…

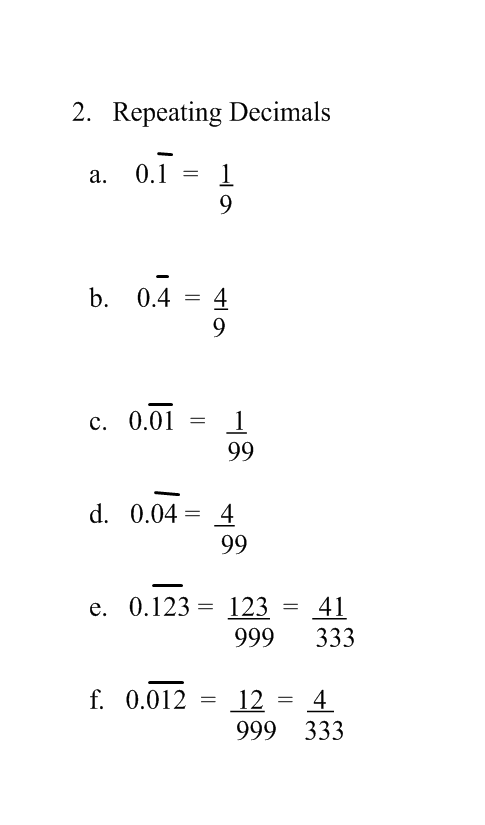
**Converting to a Decimal**

1. What to do for a Terminating Decimal.

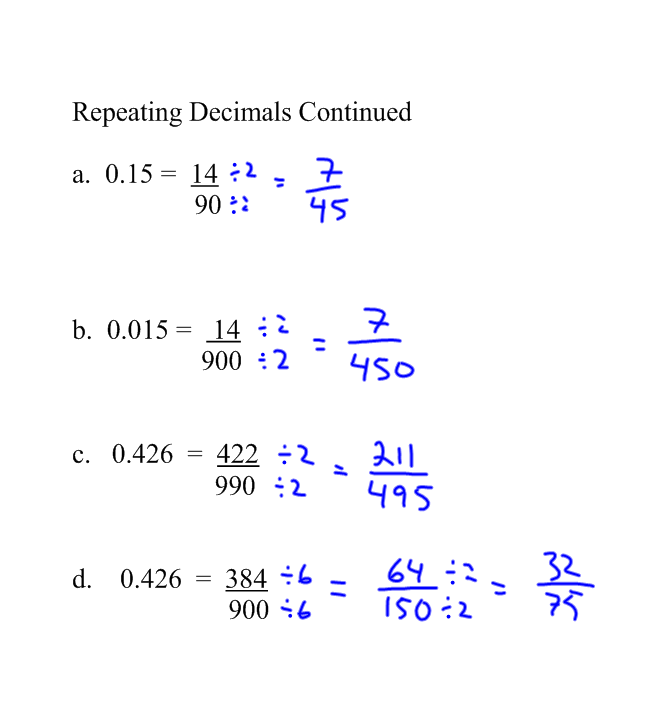
First, check to see if the fraction can be reduced.

Second, check to see if it is a must know.

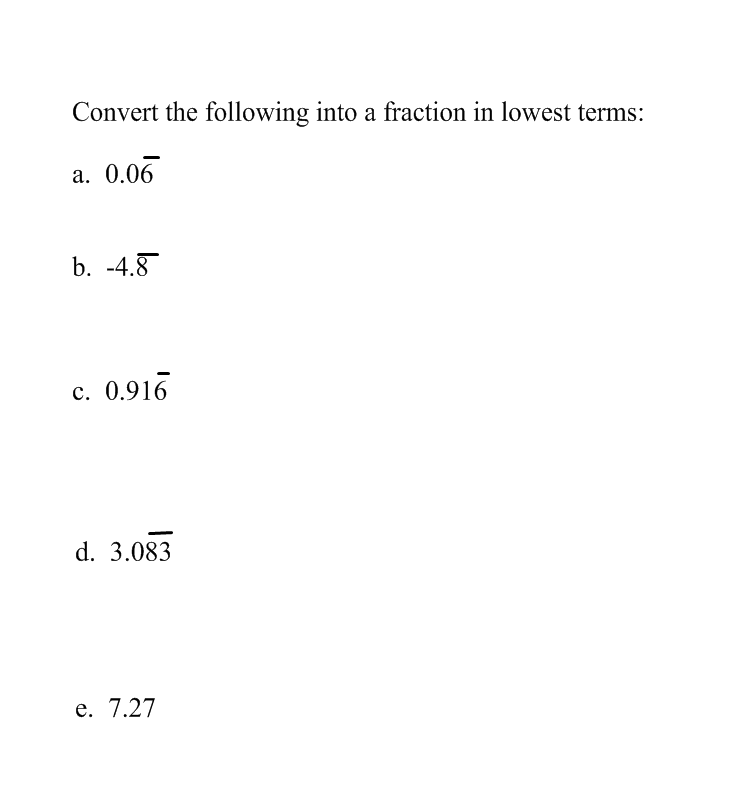
Third, can it be changed into a power of 10.

Fourth, if all the above fail, then divide.

What is the pattern?



What is the pattern?

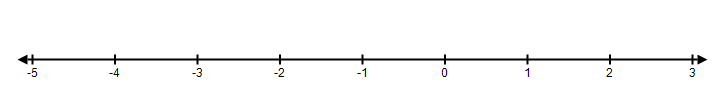


**Match the rational number to the dot on the number line:**

All these numbers are rational numbers:

**-3 , 0.5 , -1.8 , -5 , 7 , 2 , -3.3....... , 1 3**

**4 3 4**



**To write three rational numbers between each pair we will use a number line:**

